

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) such that if (A2) with the provision that (A2) is present in said at least one layer and
- is present, then (A2) is placed next to an optional a layer (B1),
- an optional layer (B1),
- a layer (B2),
- a layer (B3),
- an optional layer (B4),

wherein said layer (A1) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two, said layer (B2) is based on polyamide with amine end groups, said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride, and

said layer (B4) comprises polyolefin.

Claim 2 (Currently Amended) The film according to Claim 1, wherein comprising said layer (A1) wherein (A1) is replaced with two layers (A11) and (A12), the order of the layers being as follows:

- (A11), + (A12), + optional (A2), + optional (B1), + (B2), + (B3), + and optional (B4) wherein (A11) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of (A111) and (A112); and layer (A12) comprises by weight 0 to 50% of (A111) and 50 to 100% of (A112).

Claim 3 (Previously Presented) The film according to claim 1, wherein said fluoropolymers (B111) and (A111) are PVDF.

Claim 4 (Previously Presented) The film according to claim 1, wherein said polymers (B112) and (A112) are PMMA.

Claim 5 (Previously Presented) The film according to claim 1, wherein said polyamide of said layer (B2) is chosen from PA 6, PA 12, and PA 6/6-6.

Claim 6 (Previously Presented) The film according to claim 1, wherein the functionalized polyolefin of the layer (B3) is grafted polypropylene optionally diluted with polypropylene, EPR rubber, EPDM rubber or copolymers of propylene and of an α -olefin.

Claim 7 (Previously Presented) The film according to claim 1, wherein the functionalized polyolefin of the layer (B3) results from a co-grafting of a blend of polypropylene and of EPR or EPDM.

Claim 8 (Previously Presented) The film according to **any** claim 1, wherein the functionalized polyolefin of the layer (B3) is a blend comprising, by weight:

- 0 to 50% of at least one polyethylene or one ethylene copolymer,
- 50 to 100% of at least one polymer chosen from polypropylene or a propylene copolymer, poly(1-butene) homopolymer or copolymer and polystyrene homopolymer or copolymer,
- wherein said blend is grafted with an unsaturated carboxylic anhydride, and
- wherein said blend is optionally diluted in at least one polyolefin essentially comprising propylene units or in at least one polymer of elastomeric nature or in a blend thereof.

Claim 9 (Previously Presented) The film according to claim 1, wherein the polyolefin of layer (B4) is polypropylene.

Claim 10 (Previously Presented) A substrate coated with a film according to claim 1, wherein the layer (B3), is next to the substrate.

Claim 11 (Currently Amended) The substrate according to ~~Claim~~ claim 10, comprised of polypropylene.

Claim 12 (Cancelled)

Claim 13 (Previously Presented) The film according to claim 1, comprising a layer (B4).

Claim 14 (Cancelled)

Claim 15 (Previously Presented) The film according to claim 2, comprising a layer (B4).

Claim 16 (Previously Presented) The film according to claim 8, wherein the functionalized polyolefin of the layer (B3) is a blend comprising, by weight 10 to 40% of at least one polyethylene or one ethylene copolymer, 60 to 90% of at least one polymer chosen from polypropylene or a propylene copolymer, poly(1-butene) homopolymer or copolymer and polystyrene homopolymer or copolymer, wherein said blend is grafted with an unsaturated carboxylic anhydride, and wherein said grafted blend is optionally diluted in at least one polyolefin essentially comprising propylene units or in at least one polymer or elastomeric nature or in a blend thereof.

Claim 17 (Previously Presented) The film according to claim 8, wherein said grafted blend is diluted in at least one polyolefin essentially comprising propylene units or in at least one polymer of elastomeric nature or in a blend thereof.

Claim 18 (Previously Presented) The film according to claim 1 produced by a process of co-extrusion.

Claim 19 (Currently Amended) The film according to claim 18, wherein said process of co-extrusion is used to produce at least two layers of said film.

Claim 20 (Previously Presented) The film according to claim 1, wherein said layers contain impact modifiers, pigments, inks or additives.

Claim 21 (Previously Presented) The film according to claim 20, wherein said additive is a UV absorber or antioxidant.

Claim 22 (Previously Presented) The film according to claim 2, wherein layers (A11) and (A12) comprise a blend of polymers, exhibiting a transparent, glossy surface which is resistant to chemical or external attack or to UV.

Claim 23 (Currently Amended) The film according to claim 1, wherein said layer (A1) has all of the (A) layers have a total thickness of 1 to 200 μm .

Claim 24 (Previously Presented) The film according to claim 23, wherein said layer (A1) has a thickness of 5 to 140 μm .

Claim 25 (Previously Presented) The film according to claim 1 comprising fluoropolymer (A111) selected from the group consisting of: PVDF, vinylidene fluoride (VF2) homopolymer, vinylidene fluoride copolymers, trifluoroethylene (VF3) homopolymers and copolymers, and copolymers combining residues of chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, and/or ethylene units and optionally VF2 and/or VF3.

Claim 26 (Previously Presented) The film according to claim 25, wherein said fluoropolymer (A111) is a blend of polymers.

Claim 27 (Previously Presented) The film according to claim 1, wherein said (A112) polymers comprise acid, acid chloride, alcohol, or anhydride functions.

Claim 28 (Previously Presented) The film according to claim 1, wherein said film is anisotropic.

Claim 29 (Previously Presented) The film according to claim 1, wherein said layer (B3) is between 10 and 250 μm .

Claim 30 (Currently Amended) The film according to claim 29, wherein said layer (B3) is between 40 ~~an~~ and 110 μm .

Claim 31 (Previously Presented) The film according to claim 1, wherein said layer (B4) is between 400 and 800 μm .

Claim 32 (Previously Presented) The film according to claim 31, wherein said layer (B4) is between 500 and 600 μm .

Claim 33 (Previously Presented) A coated substrate produced by insert molding co-extrusion, layering or hot-press molding a film according to claim 1 on said substrate.

Claim 34 (Previously Presented) The film according to claim 1, wherein said layers (A) and (B) are manufactured separately and hot-assembled.

Claim 35 (Previously Presented) A process for producing a thermoforming multilayer film comprising co-extruding said layers of claim 1.

Claim 36 (Previously Presented) A process for producing a thermoforming multilayer film comprising co-extruding at least two of said layers according to claim 1 and then layering on separately remaining said layers.

Claim 37 (Previously Presented) A substrate coated with a film according to claim 1, wherein the layer (B4) is next to the substrate.

Claim 38 (Previously Presented) The film according to claim 8, wherein the functionalized polyolefin of the layer (B3) is a blend comprising, by weight:

0 to 50% of at least one polyethylene or one ethylene copolymer, and
50 to 100% of polypropylene.

Claim 39 (Currently Amended) The film according to claim 16, wherein the functionalized polyolefin of the layer (B3) is a blend comprising, by weight:

0 to 10 to 40% of at least polyethylene or one ethylene copolymer, and
60 to 90% of polypropylene.

Claim 40 (New) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) such that if (A2)
- is present, then (A2) is placed next to an optional layer (B1),
- an optional layer (B1),
- a layer (B2),
- a layer (B3),
- an optional layer (B4),

wherein said layer (A1) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two, said layer (B2) is based on polyamide with amine end groups, said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride, and

said layer (B4) comprises polyolefin, with the provision that said multilayer film does not contain said optional layer (B4).

Claim 41 (New) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) such that if (A2)
- is present, then (A2) is placed next to an optional layer (B1),
- an optional layer (B1),
- a layer (B2),
- a layer (B3),
- an optional layer (B4),

wherein said layer (A1) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (B2) consists of polyamide(s) optionally blended with at least one member selected from the group consisting of polyolefin(s), filler(s), UV absorber(s), pigment(s) and colorant(s) and mixtures thereof

said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride, and

said layer (B4) comprises polyolefin.

Claim 42 (New) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) such that if (A2)
- is present, then (A2) is placed next to an optional layer (B1),
- an optional layer (B1),
- a layer (B2),
- a layer (B3),
- an optional layer (B4),

wherein said layer (A1) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two, said layer (B2) is based on polyamide with amine end groups, said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride, and

said layer (B4) comprises polyolefin, with the provision that said layer (A1) is present and comprises said blend of fluoropolymer (A11) and polymer (A112) consisting essentially of alkyl (meth) acrylate units.

Claim 43 (New) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) such that if (A2)
- is present, then (A2) is placed next to an optional layer (B1),
- an optional layer (B1),
- a layer (B2),
- a layer (B3),
- an optional layer (B4),

wherein said layer (A1) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two, said layer (B2) is based on polyamide with amine end groups, said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride, and

said layer (B4) comprises polyolefin, with the provision that layer (A1) is present in the form of two layers (A11) and (A12) wherein (A11) comprises a blend of fluoropolymer (A111) and (A112) consisting essentially of alkyl (meth) acrylate units, and (A12) comprises, by weight, 0 to 50% of (A11) and 50 to 100% of (A112).

Claim 44 (New) A thermo forming multilayer film according to claim 1, wherein said layer based on polyamide with amine end groups is produced by synthesizing the polyamide in the

presence of an excess of diamine when polyamides and/or copolyamides are manufactured using a lactam or an α -amino carboxylic acid, a diamine or monoamine is employed as a chain limiter.

Claim 45 (New) A composition according to claim 1, wherein said polyamide having substantially only amine end groups.

Claim 46 (New) A thermoforming multilayer film comprising successively:

- at least one layer chosen from layers (A1) and (A2) with the provision that (A2) is present in said at least one layer and
- is placed next to a layer (B1),
- a layer (B2),
- a layer (B3),
- an layer (B4),

wherein said layer (A1) is present and comprises layers (A11) and (A12) wherein layer (A11) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of (A111) and (A112); and layer (A12) comprises by weight 0 to 50% of (A111) and 50 to 100% of (A112) comprises a fluoropolymer (A111) or a polymer (A112) consisting essentially of alkyl(meth)acrylate units or a blend of the two,

said layer (A2) consists essentially of ink,

said layer (B1) comprises a fluoropolymer (B111) or a polymer (B112) consisting essentially of alkyl(meth)acrylate units or a blend of the two, said layer (B2) is based on polyamide with amine end groups, said layer (B3) consists essentially of a polyolefin functionalized with an unsaturated carboxylic anhydride,

said layer (B4) comprises polyolefin, and

the order of the layers is (A11) + (A12), + (A2), + (B1), + (B2), +(B3), + optional (B4).

Claim 47 (New) A thermoforming multilayer film according to claim 1, wherein all of said polyamide end groups consist of amines.